

CLAIMS

What is claimed is:

1. A wire harness apparatus for remote use with a camera node array having a plurality of camera nodes sharing a common set of conductors on a cable, and which electrically converts signals from and to the camera node array over a relatively long cable length, comprising:

5 conductor means for carrying power, video, and control signals over a relatively long distance;

remote signal conversion means, connected to one end of said conductor means, for connection to a general-purpose remote interface to access and control the plurality of camera nodes, and for conversion between single-ended signals at said general purpose remote
10 interface and differential signals on said conductor means; and,

local signal conversion means, connected to the opposite end of said conductor means, for interface to said plurality of camera nodes for conversion between differential signals at said conductor means and single-ended signals at said camera node array.

2. The wire harness apparatus according to claim 1 wherein said local signal conversion means receives alternating current power input from said conductor means and derives a frame synchronization signal for use by each of the camera nodes in the camera node array.

3. The wire harness apparatus according to claim 1 wherein said local signal conversion means receives alternating current power input from conductor means and converts the alternating current power on the power conductor to provide power for use by each of the camera nodes in the camera node array.

4. The wire harness apparatus according to claim 1 wherein:

said remote signal conversion means converts a single-ended input transmit control signal to a differential output control signals, converts a differential input receive control signal to a single-ended output control signal, converts a differential input video signal to a
5 single ended output video signal, and passes through alternating current power wherein each of said differential signals are connected to said conductor means and each of said single ended signals define said general purpose remote interface.

5. The wire harness apparatus according to claim 4 wherein:

said local signal conversion means for interface to said camera node array converts a differential input transmit control signal to a single-ended output control signal, converts a single-ended input receive control signal to a differential output control signal, converts a single-ended input video signal to a differential output video signal, receives alternating current power and derives a frame synchronization signal as an output and converts power for use by each of the camera nodes in the camera node array, wherein each of said differential signals are connected to said conductor means and each of said single ended signals are connected to the camera node array.

6. The wire harness apparatus according to claim 1 wherein the number of individual conductors used in said conductor means is the same number used by the camera node array.

7. The wire harness apparatus according to claim 1 wherein said local signal conversion means comprises processing means to poll individual camera nodes for activity within a field of view for each camera node and select a next camera node for display according to the activity.

8. The wire harness apparatus according to claim 1 wherein said local signal conversion means comprises processing means to select individual camera nodes according to a programmed pattern.

9. A method to individually select any one of a plurality of uniquely addressable camera nodes sharing a common set of conductors, comprising:

polling each camera node in succession for activity status within a field of view of the camera node during each video frame interval;

selecting for the next frame of video the first camera node to respond with activity status within its field of view; and,

selecting the next frame of video from the next adjacent camera node within the array if no activity is present such that all nodes source a single frame in succession if no activity is present.

10. A method to modify the video signal driven from any one of a plurality of uniquely addressable video camera nodes sharing a common video signal conductor such that the video signal is embedded with a unique number identifying the node, comprising:

synchronizing to a video signal associated with a current camera node;

5 identifying a unique number associated with the current camera node during an interval in which the current camera node is driving the video signal onto a common video signal conductor; and,

embedding the unique number onto each frame of the video signal during the interval such that the unique number may be retrieved from the video signal.